SHA
SCIENCE & HISTORY ALLIANCE

QUARTERLY

LOS ANGELES COUNTY MUSEUM / VOLUME 2 · NUMBER 4

GOLD BEFORE COLUMBUS Proteins from Rancho La Brea Fossils / One of a Kind / California History on Glass / Mutual Aid among Whales / Frances Roberts Nugent / Book Review / Spotlight / Members Corner

His person and his nobles adorned with gold, the Inca Atahualpa meets the first Spaniards in the plaza of Cajamarca.

Illustration from Felipe Guaman Poma de Ayala, 1613.

SHA
SCIENCE & HISTORY ALLIANCE

How many new members have you sold on these privileges and pleasures of membership?

1. *A subscription to the Science & History Alliance* QUARTERLY
2. *Summer workshops in science for children*
3. *Family participation programs*— NEW DIMENSIONS TO DELIGHT— *tickets available only to members*
4. *20% discount on most items at the Museum Bookshop*
5. *50% discount on tickets for the Science and the History Lecture Series*
6. *The Monthly Calendar of Events*
7. *Announcements for the annual Film Circuit*
8. *Announcements for the annual Where-in-the-World travel series*
9. *Invitations to previews and receptions for new exhibitions, and to meet lecturers*
10. *Additional selected publications*
11. *Other bonus rewards.*

Memberships are available for $10 to $1,000. A descriptive brochure will be mailed upon request. RIchmond 8-2194.

With great swiftness the early participants were replaced by those with later reservations for the Grey Whale trip.

MEMBERS' CORNER

The New Dimensions to Delight announcement in October was met with sudden and overwhelming response. Those of you who may have been disappointed will be interested in the following:

1. All of the programs with the exception of the one which had been presented twice last year were rescheduled. Three additional days were added at Caltech. Open House, Californiana, and the Arboretum Safari were all rescheduled for one additional day. And the Grey Whale Boat trip grew from one boat to twenty-four.
2. Extra help was hired for a full two weeks to ticket.
3. We found it was impossible for Scripps Institute of Oceanography to present films on so many different days and time—so this had to be dropped.
4. Tickets had to be printed for the many extra events not foreseen when we went to press.
5. After the tickets were mailed out an additional three hours a day was spent in making adjustments.
6. Our Docents have had to add many extra hours of volunteer work at the Museum—which they have done with good nature and charm.

It was wonderful to know how much our members have appreciated this series. As one member wrote, "We went on the Gray Whaling trip and found it very exciting, for a baby whale adopted our boat for a while and stayed so close, we could almost touch him." We are grateful to each of you who wrote or called to thank us.

Three generations of whale watchers shared in the excitement of the San Diego Charter Boat trips.

EXTRA INCENTIVE FOR MEMBERSHIP!

At the midway point in our first membership drive, we hope every Alliance member has brought in lots of new ones . . . and here's an extra "plus" to offer to your prospects:

Every new member who joins between now and the May 15 deadline will receive FREE one admission to the "Gold Before Columbus" exhibition, AND the beautiful catalog of the exhibition. This gift is worth $2.50.

Added to the privileges and pleasures of membership, this makes a virtually irresistible package!

Remember, every new member you sign up will help you towards the prizes:

PRIZES for those bringing in the most new members

GRAND PRIZE
Round trip flight for two to Mexico City (courtesy of Western Airlines)
other prizes include
collectors' items in archeology and ethnology—and many more

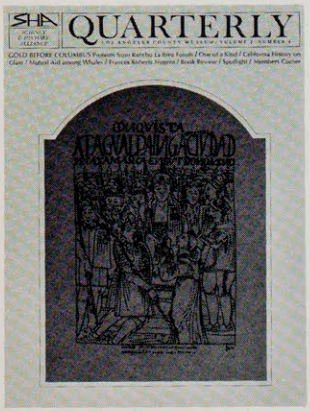
START TODAY!
DRIVE CLOSES MAY 15, 1964

Los Angeles
County Museum

HERBERT FRIEDMANN
Director
CHARLES F. GEHRING
Assistant Director
THEODORE DOWNS
Chief Curator, Earth Sciences
FRED S. TRUXAL
Chief Curator, Life Sciences
RUTH I. MAHOOD
Chief Curator, History
RUSSELL J. SMITH
Chief of Education

Science and History Alliance
Board of Directors

MR. A. RABORN PHILLIPS, JR.
Chairman
MR. F. THOMAS FREEAR
1st Vice Chairman
MR. CARL S. DENTZEL
2nd Vice Chairman
MRS. ARTHUR MANELLA
3rd Vice Chairman
MRS. MAURICE A. MACHRIS
Secretary
MRS. BRUCE BELT
MRS. STEPHEN BOOKE
MRS. MARGARET W. DIVIZIA
MR. P. T. FURST
MR. GLENN HIATT
MR. CLARK HUNTER
MRS. LAWRENCE E. IRELL
MR. LAWRENCE L. JEFFRIES
MRS. RICHARD S. JOHNS
DR. GEORGE C. KENNEDY
MRS. EDWARD LILLY
MISS JANICE MAY
MR. HARRY J. PACK
MR. THOMAS C. RIDGWAY, JR.
MR. JUSTIN TURNER
MR. THOMAS WOLFE
MRS. RALPH COUSINS
Honorary
MRS. PRESTON HOTCHKIS
Honorary
MISS LUCILLE LIBOW
Executive Secretary



Cover design: Teiji Ohara

SHA
SCIENCE & HISTORY ALLIANCE

QUARTERLY

LOS ANGELES COUNTY MUSEUM / VOL. 2 · NO. 4
SPRING ISSUE 1964

Gold Before Columbus 4
Proteins from Rancho La Brea Fossils 10
One of a Kind 12
California History on Glass 13
Mutual Aid Among Whales 18
Frances Roberts Nugent 20
Spotlight 22
Book Review 23

Board of Governors
(Department of History and Science)

EDWARD W. CARTER
C. V. DUFF
JOHN JEWETT GARLAND
ED N. HARRISON
Vice President
DAVID W. HEARST
T. R. KNUDSEN
JOSEPH B. KOEPFLI
MRS. RUDOLPH S. LIEBIG
BART LYTTON
MAURICE A. MACHRIS
CHARLES O. MATCHAM
WILLIAM T. SESNON, JR.
President
WILLIAM J. SHEFFLER
Secretary
DR. R. B. VON KLEINSMID
DR. M. NORVEL YOUNG

Trustees of Museum Associates

HOWARD F. AHMANSON
DAVID E. BRIGHT
SIDNEY F. BRODY
First Vice President
DR. RICHARD F. BROWN
EDWARD W. CARTER
President
JUSTIN DART
CHARLES E. DUCOMMUN
C. V. DUFF
Treasurer
JOHN JEWETT GARLAND
MRS. FREEMAN GATES
Secretary
ED N. HARRISON
DAVID W. HEARST
ROGER W. JESSUP
JOSEPH B. KOEPFLI
MRS. RUDOLPH S. LIEBIG
Second Vice President
MAURICE E. MACHRIS
CHARLES O. MATCHAM
FRANKLIN D. MURPHY, M.D.
J. R. PEMBERTON
A. RABORN PHILLIPS, JR.
VINCENT L. PRICE, JR.
JOHN REX
WILLIAM T. SESNON, JR.
WILLIAM J. SHEFFLER
NORTON SIMON
MRS. KELLOGG SPEAR
MAYNARD J. TOLL
DR. R. B. VON KLEINSMID
MRS. STUART E. WEAVER, JR.
DR. M. NORVEL YOUNG

The Los Angeles County Museum QUARTERLY is published for the SCIENCE AND HISTORY ALLIANCE. Staff this issue: Lucille Libow (editor), Harry Pack, Teiji Ohara (art editors), Susan E. Barrett, Elizabeth S. Hunt, Eleanor B. Lehner (assistant editors). QUARTERLY Committee: Theodore Downs, Herbert Friedman, Ruth I. Mahood, Katherine Jenney, Gretchen Sibley, Fred S. Truxal, Robert Weinstein. (Museum Photographer) Armando Solis, (Museum Illustrator) Mary Butler.

By P. T. Furst, Exhibition Director

Almost four and a half centuries have passed since Albrecht Dürer noted in his diary that he had seen the first golden works of art to reach Europe from the newly conquered Americas and that in all his life nothing had "so rejoiced my heart as these things." Dürer, whose own artistic genius still makes our hearts rejoice today, wrote that what he had seen were truly "marvelous artistic objects" which made him exclaim "over the subtle ingenuity of the men in these distant lands."

Unfortunately for future generations, the Spaniards, from Charles V on down, did not share Dürer's delight—or if they did it was not sufficient to keep them from consigning to the melting pot each and every one of the tens of thousands of golden objects they found "in these distant lands." It is a tragedy almost too great to comprehend that not one single authenticated object of gold survives from Conquest times. In the New World, the *conquistadores* broke up and melted down their loot as fast as pos-

Museum of Primitive Art, New York.

GOLD BEFORE COLUMBUS

sible, to be turned into cold, hard bullion, into titles, lands and slaves. The Royal Fifth—that part of each load of loot reserved for the Crown—suffered the same fate in Spain without the King ever bothering even to examine it and feast his eyes, for Charles V was deeply in debt and needed ready cash, not "marvelous artistic objects" fashioned by the "subtle ingenuity" of Indian goldsmiths in faraway America.

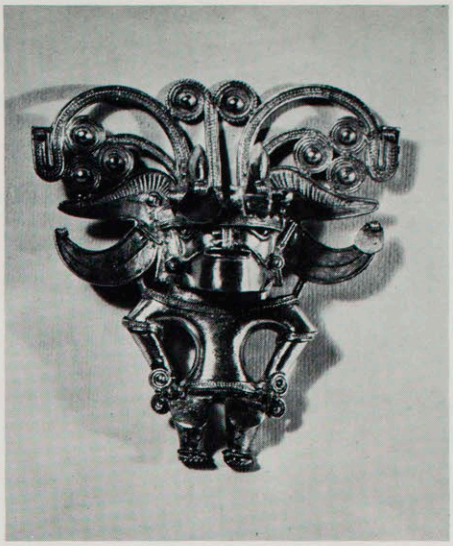
The total treasure taken by the Spaniards staggers the imagination, but try as they might—and they burrowed like hungry moles through the graves of nobles and priests and Indian rulers the length and breadth of Spanish America in search of gold—they did not get it all.

On March 18, 1964, the Los Angeles County Museum opened an exhibition of some of the gold missed by the *conquistadores*. Between 250 and 300 individual objects are on view, covering some 2300 years of the art of the goldsmith in pre-Columbian America and ranging from the coastal deserts of southern Peru northward through Ecuador, Colombia, Costa Rica and Panama to Aztec Mexico. At one end of the time scale is some of the earliest gold to have been worked in the New World, gold crowns and ornaments ascribed to the Chavín horizon of northern Peru and dated possibly as early as 800-900 B.C. At the other end is the exquisitely fashioned Mixtec and Aztec jewelry from Mexico, whose beauty and excellence of workmanship moved not only Dürer but Benvenuto Cellini as well to exclamations of wonder and delight.

The exhibition includes death masks and massive foot-high effigy beakers with the faces of gods embossed; miniature animal pendants the size of a pea; nose ornaments ten inches wide and hung with gently tinkling danglers of gold, and even a shirt of woven cotton covered with 2,360 square plaques of gold arranged in a delightful checkerboard pattern.

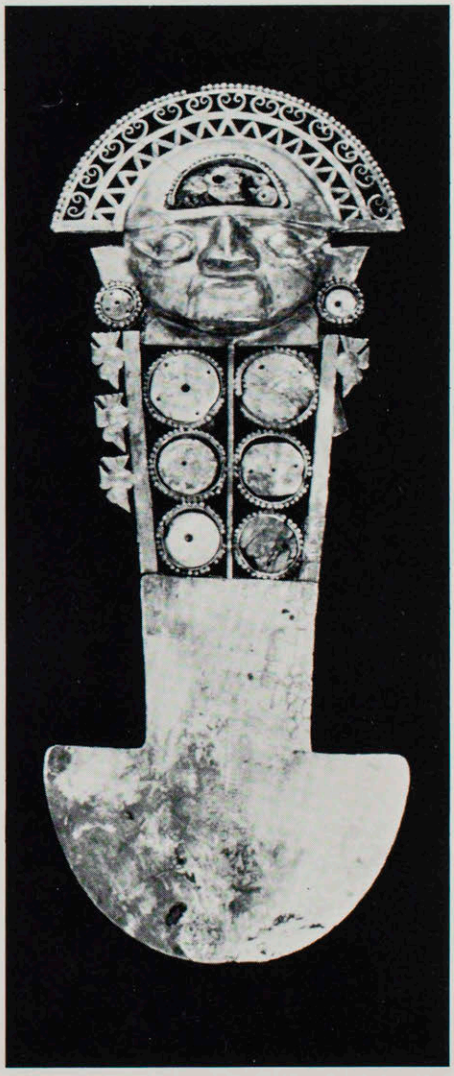
Moreover, the visitor may see here examples of almost every known technique used by the ancient goldsmiths of Indian America, from cold-hammering to hollow casting by the so-called "lost wax" process.

Many of the leading institutions and collectors in the United States are represented in the exhibition. To mention only a few: the American Museum of Natural History in New York; the Peabody Museum of Harvard University; the Museum of Primitive Art, New York; the Brooklyn Museum; the Museum of the American Indian, Heye Foundation, in New York; the University Museum, University of Pennsylvania; the Textile Museum of Washington, D.C.; the Chicago Art Institute; the Cleveland Museum of Art; the University of California at Los Angeles; the M. H. de Young Memorial Museum of San Francisco, and others. Some of these literally emptied their safes and exhibition cases of pre-Columbian gold to enable the Los Angeles County Museum to make this contribution both to public enjoyment and increased knowledge and appreciation of the aesthetic and technological achievements of the civilizations of the American Indian. Others contributed unique and important objects without peer anywhere in the world.



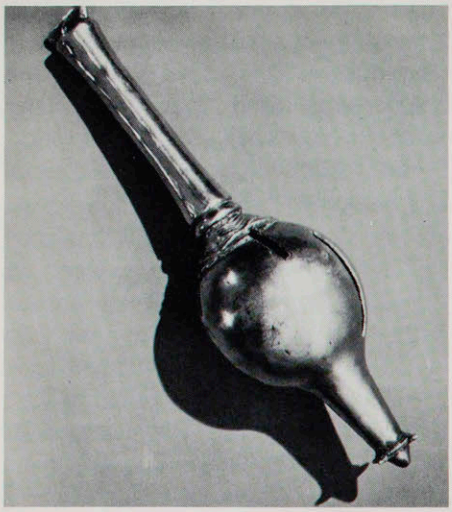
Intricately cast pendant representing a supernatural being, Tairona culture, Colombia. Found in the Sierra Nevada Mountains, northeastern Colombia. 5¼" high. From the collections of Alan Caplan, New York.

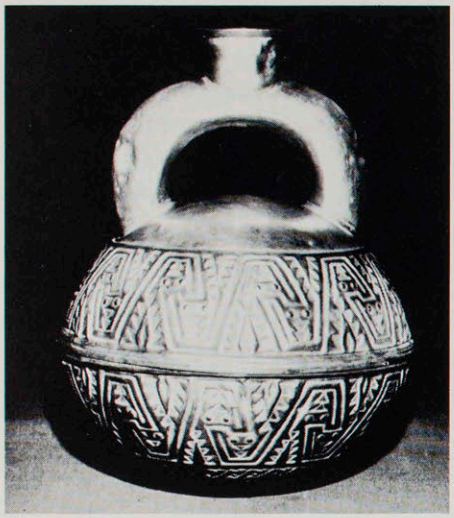
Ceremonial knife or "tumi" of gold, with encrustations of turquoise, Chimu culture, Peru, 1200-1400 A.D. Height: 13". From the collections of Paul R. Clifford and Paul R. Cheesman, Miami.



True, the exhibition concentrates on but one aspect of the civilizations of ancient America, and an aspect which, at that, had a far different meaning within the context of these long-gone cultures than it has to us. It is somewhat difficult for us to place them in their proper perspective. It is difficult because our own traditions are different, our very worlds are different. We may not be suffering, as Cortez said of his own Spaniards at the time of the Conquest, "from a disease for which gold is the specific remedy," but still it is not easy to divorce our attitude toward gold, even the gold of ancient America, from its material connotations, from the sheer wealth and opulence it represents in our wealth-and-status-conscious world today.

This is not to suggest that the Aztec and the Inca were not concerned with status, and even, in a sense, wealth, or that gold and its possession had not at least some such meaning even then; the incredible loot torn from private homes as well as temples in the sacred Inca city of Cuzco and in the palace of Moctezuma in the Aztec capital of Tenochtitlan attest to that. But this was only part of the story. The bitter tears wept by the people at seeing their sacred images melted down into bullion were shed not for any material losses, but rather for the loss of something far more precious, far more sacred. We may see at least a





Rattle of heavy cast gold, 8½" high, from the Tairona culture, Colombia. Collections of the Museum of Primitive Art, New York.

"Stirrup" vessel of beaten and embossed sheet gold, 10" high. Possibly dating to 500 B.C. Found in northern Peru. From the collections of the American Museum of Natural History, New York.

Delicate ornamental pin cast in the famous "lost wax" process, from the Sinú culture, Colombia. 7⅜" long. From the collections of the Museum of Primitive Art, New York.

hint of this in the term used by the people of the Inca realm for the metals in their mountains.

"Those who went to the mines worshipped the hills which contained them and the mines themselves, which they call *Coya*," writes Father Bernabé Cobo in his *Historia del Nuevo Mundo,* "begging that they would give up their metals. . . . They likewise adored the metals, which they called *Mama,* and the matrix of said metals, called *Corpas,* kissing them, and they perform with them other ceremonies. . . ."

Suffice it to say that *Coya*, in the Quechua language, the language of the Inca state, means Queen (indeed, it was the title of the wife of the Inca himself), and that *Mama* is the kinship term used to address one's own mother and one's mother's sister!

And the accounts of Fray Bernadino de Sahagún of the arts and crafts of Aztec Mexico in his monumental Florentine Codex similarly stress the deeply religious aspects of both gold and the working of gold.

To the Spaniards, of course, all this represented merely a curiosity; no matter how beautiful, or how sacred, Indian gold was quickly consigned to the crucible. To read through the early eyewitness accounts of the spoils from Peru is an incredible experience. The mind reels under such wanton destruction of works of art, from the most insignificant gold pins to golden statues "the size of the women of that land, all of fine gold and as beautiful and well made as if they were alive," in the words of Pedro Sancho, secretary to Pizarro, who was present when the loot of Cuzco was melted down.

Some historians have tried to suggest that the Spaniards exaggerated their booty. That, however, is difficult to accept. Pizarro and the rest were, by royal decree, obliged to turn over a fifth of everything they "found" to His Majesty, King Charles V, and there were special representatives of the Crown to see that this edict was carried out. It would hardly have paid the *conquistadores* to exaggerate their loot under such conditions, for the larger the reported total, the larger also the Royal Fifth they were forced to surrender. Indeed, it is far more likely that the total treasure was greater than actually claimed, rather than smaller.

Just how much gold—in terms of cold, hard cash—did the Spaniards capture in Peru? S. K. Lothrop, a veteran student of pre-Columbian metal working as well as the archaeology of the Americas, has done considerable research into this question, and the figures below are basically his.

The first Inca city to be sacked by the Spaniards was Coaque, in what is now Ecuador, in January, 1531. They looted and destroyed the town and, according to their own statements, melted down some 2000 pounds of gold and silver, including "many crowns of gold made after the fashion of imperial crowns."

At this time, the Inca ruler Atahualpa was encamped with his army at the city of Cajamarca. Apparently Atahualpa had little or no inkling of Spanish behavior in Mexico and Central America, for he invited the invaders to lodge freely in his government buildings and even called upon Francisco Pizarro with but a handful of attendants. His reward for such naive trust in the rules of hospitality was to be treacherously assaulted and captured. His army, to whom he had given orders not to fight the Spaniards, was cut to pieces, leaving behind a rich booty in gold and silver ornaments amounting, according to Pedro Pizarro, to the equivalent of 400 pounds in melted-down gold bullion, and about 2000 pounds more in silver. All this, however, was nothing compared to what was to follow.

Shortly after the fateful "battle" at Cajamarca, Atahualpa made his famous ransom offer, which consisted of a promise to fill a large room, approximately 25 feet by 15 feet, with gold to the height of a tall man's upstretched hand, and the same room twice over with silver. He himself is said to have drawn the line on the wall. For the next 40 days, Indian burden bearers and llama trains converged upon Cajamarca from all parts of the Inca realm, loaded down with gold for the ransom; the amassing of silver was to take a total of two months. The Spaniards, of course, did not patiently wait for the loot to come to them; they themselves sent out parties to loot Inca towns, temples, graves and homes. At Pachacamac, the population seems to have managed to hide most of the temple treasure before the arrival of the Spaniards: as many as 400 llama loads of gold and silver are said to have

Breastplate of gold, with repoussé design representing alligator deity. Coclé culture, Panama. Dia.: 8½". Coll. University Museum, Philadelphia.

Cast gold bottle or flask, Quimbaya culture, Colombia, possibly 1000 A.D. Height: 8". Width: 4⅛". Weight: 278.7 gr. From the collections of The Brooklyn Museum, Brooklyn, N.Y.

A sacrificial object from the Sacred Well at Chichén Itzá, Yucatan. Traded to the Maya area from Central America, this gold pendant, possibly representing the crocodile god, was deliberately smashed to "kill" it prior to being thrown into the sacred pond. From the collections of the Peabody Museum, Harvard University.

disappeared. At Cuzco, the temple of the sun and private residences were stripped of gold, and Lothrop quotes Pedro Sancho's account of "five hundred of plates of gold torn from some house walls." Even the smallest of these, he said, weighed four or five pounds and larger ones as much as ten or twelve.

"They also brought a seat of very fine gold, worked into the form of a footstool," Sancho writes, "which weighed eighteen thousand pesos. Likewise they brought a fountain all of gold and very subtily worked which was very fair to see as much for the skill of the work as for the shape which it had been given; and there were many other pieces such as vases, jars and plates which they also brought."

According to these accounts, the total shipped from Cuzco alone for the ransom payment amounted to 200 loads of gold and 25 of silver. Each of these loads was so heavy that it had to be carried by four Indians on a litter. "Fair to see" or not, all of it was destined to be melted down. Francisco Pizarro, by his contract with the Crown, had the right to choose for himself a single article (in addition to his normal share). He picked a golden *tiana,* or stool, which reportedly weighed over 200 pounds. It was, needless to say, broken up and melted down.

The ransom of Atahualpa was more than paid in full and the Spaniards so acknowledged. But it failed to secure the Inca ruler's promised freedom. Pizarro decided that he had to die; Atahualpa was tried for treason against the Crown and sentenced to death. He was given his choice: to die by the garrote as a Christian, or by fire as a heathen. Atahualpa chose the former and was strangled to death in the plaza of Cajamarca.

It should be emphasized that, large though it was, the ransom of Atahualpa was by no means the only loot Pizarro secured in this early, brutal phase of the Conquest. There were endless raiding parties which sacked homes, temples and towns. Much gold was surrendered voluntarily by local chieftains who thought they might thus appease the Spaniards. On the slow march to Cuzco, which had already yielded so much gold for the Atahualpa ransom, more gold and silver were taken, including, near Curamba, ten silver slabs twenty feet long, a foot wide and three fingers thick.

These, apparently, had been destined for a temple at Trujillo.

The Spaniards entered Cuzco a year after their arrival at Cajamarca. It is true that by this time the inhabitants had managed to secrete at least some of the golden treasure of the sacred city, but Francisco Pizarro managed to discover a good part of it through mass torture and house-to-house searches. Cuzco was thoroughly sacked and the inhabitants divided up among the conquerors as slaves. The loot of Cuzco, amounting in the end to the equivalent of Atahualpa's ransom, included the golden statues of women mentioned earlier, each weighing 50 pounds and more, awnings of gold and silver, huge gold vessels decorated with "lobsters of the sort that grow in the sea, and others sculptured with all the birds and serpents, even spiders, lizards and all the sorts of beetles which they know, all carved on the body of the gold," according to one eyewitness account.

Lothrop has calculated the cash value of the loot of Cuzco and the ransom of Atahualpa, on the basis of the figures reported by Pizarro and others in his party, at the present-day equivalent of $16,890,105.57. However, Lothrop emphasizes, this merely represents the bullion value; in terms of the purchasing power in the 16th Century, the actual value must be reckoned at ten times this figure. Moreover, this represents only the ransom and the booty taken at Cuzco and does not include the considerable loot obtained elsewhere.

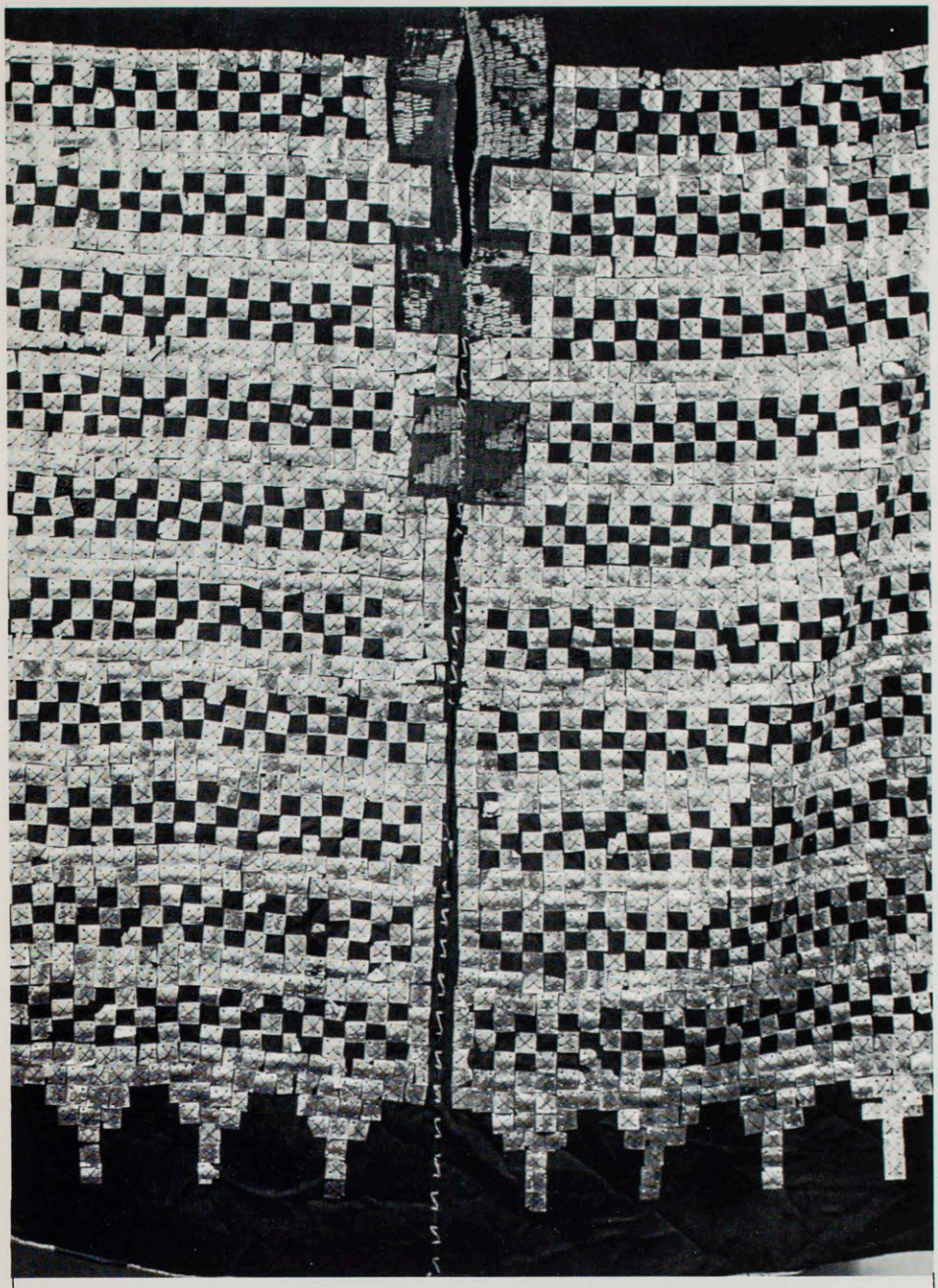
Once Peru was secured, Spanish wealth in terms of precious metals continued to come from two sources—the mines, with enslaved Indian labor, and hidden treasure. A great deal of romantic nonsense has been written about "buried treasure," both during and since the Conquest, but even discounting much of this, the fact remains that enormous quantities of hidden gold and silver were actually discovered by the Spaniards. Nor has the ransacking of burials and suspected hiding places ceased; indeed, pre-Columbian gold objects were still being melted down early in the present century. In one sense, at least, it might be considered fortunate that collectors will pay as much as they do for gold objects found intact, because it has at last put an end to the frightful business of the melting pot.

Not all the gold discovered by the Spaniards in burials or sacred mounds belonged to the Inca period. Visitors to the Los Angeles County Museum exhibition will note the many fine pieces ascribed to the Chimu, the richest kingdom on the coast prior to the advent of the Incas in the 15th Century A.D. Their capital was at Chanchan, near Trujillo, and this general area has yielded great quantities of archaeological treasure, including gold and silver. The looting of Chimu mounds goes back to 1550, when a local chief revealed the hiding place of a royal treasure in a sacred *huaca* called Lomayahuan. He did this on condition that part of the find be used to aid his destitute people; the Spaniards tried to renege on their promise but changed their minds when the chief hinted that he knew of even greater treasure hidden elsewhere. Thirteen years later, in 1563, more tombs were thus looted and much gold and silver melted down, but the largest discovery came in 1566, when a single Chimu mound yielded over 8000 pounds of gold. In 1602, the Spaniards diverted the waters of the river Moche in order to wreck the great Pyramid of the Sun, dating back to the early Mochica civilization. This pyramid was built around the time of Christ, entirely of mud bricks, and along its base the Spaniards found gold and silver objects reportedly totalling thousands of pounds. And the search goes on unabated to the present day. In the past year or two alone, at least two major treasures of Chimu gold have been found intact, including hundreds of large, decorated effigy beakers of the style to be seen in the current exhibition.

The art of the goldsmith in ancient Peru reached its high point in Chimu times, but, as mentioned earlier, metal working was by then already an ancient craft in the Central Andes. Such techniques as hammering, embossing, annealing, champlevé, soldering, strap joining and the making of bi-metallic objects were practiced as early as Chavín times, around 800 B.C.; and in the succeeding centuries many other techniques were added. Experts on the craft of metal working are agreed that long before the Conquest the goldsmiths of ancient America had mastered most of the techniques known in the Old World and still practiced today. Iron was, of course, unknown in the New World before the coming of the Europeans, but the Indians worked with gold, silver, copper, tin, lead and even platinum, as well as with numerous alloys. Their techniques, in addition to those already mentioned, included cut-out work, sheathing, encrusting, casting in open and closed molds, plating and gilding, as well as such intricate operations as *mise-en-couleur,* or the art of coloring by concentrating the precious metal on the surface of an alloy object (gold-copper, for example) by means of acid treatments. By and large, we might say, the techniques practiced in ancient America were remarkably similar, and in some cases, including that of "lost wax" casting, almost identical to those used—far earlier—in the Old World. To say that such parallels have caused some debate over the origins of American Indian civilization and the possibilities of trans-Pacific contacts is putting it mildly. However, whether or not Indian civilization was stimulated from the outside, the fact remains that the hundreds of objects on view at the County Museum are unique—the products of American Indian goldsmiths, of their highly developed aesthetic sense and love of beauty, and their enormous native skill and craftsmanship. It is in this light that they should be viewed.

It would, however, be a mistake to view them only in their material manifestation, only in terms of techniques—no matter how admirable. It is true that in the study of cultures, such traits as metal working would come under the heading of "material culture," along with weaving, pottery, house construction, stone working and the like, as opposed to the non-material, such as religious beliefs, value systems, social organization, oral literature and the like. One has a nagging suspicion, however, when viewing the death masks, the effigy beakers, the figures of deities and animals, that something is amiss in such arbitrary classification.

Certainly the techniques by which they were fashioned are material. Certainly the objects themselves are of metal, which has been mined, smelted, cast. The object is real, material. You can feel it, touch it, admire it. But, as we saw earlier, it is also much more: the mountains from which it came were worshipped, the metal from which it was



Cotton textile shirt embroidered around neck in pink, yellow, blue and red step patterns, with front covered with 2,311 plain gold plaques. Chimu culture, from Lambayeque Valley, northern Peru, approx. 1200-1400 A.D. Collection of Paul Clifford and Paul R. Cheesman, Miami, Fla. Size: 36" x 36".

fashioned was addressed as "Mama," the eventual meaning of it was sacred. Does it, then, indeed, belong under the heading of "material?"

This dilemma is but a hint of the cross the archaeologist must bear in his attempts to reconstruct the lives of peoples of the past. The earth yields to his trowel a lopsided picture of ancient cultures, for only that which is indestructible by time and elements survives. Pottery survives, and stone, and some few metals. But such indestructible objects represent only a fraction of even the material culture of a people—as may be seen clearly in any "primitive," stone tool-using group today—and what is more, the material represents but a part of the total culture picture, and often a very small part, at that. Anyone who doubts the problem need only look around him and assess what part of his own material possessions—no matter how extensive or "substantial"—might survive for a future archaeologist to dig up, and what inferences he might be able to make about the total culture of 20th Century America from this fragmentary evidence. With our literature long since rotted away (unlike the Mesopotamians we, after all, do not write on clay or stone), with nothing remaining of our flimsy houses but crumbling foundations, with so many of our daily needs served by objects which barely survive the time it takes to pay for them, much less a thousand years of history, one shudders to think of the picture our hypothetical future archaeologist might conjure up about our life today!

The gold of ancient America, what little of it survives, can give us just such a lop-sided view of the cultures which grew, flourished and died here long before Columbus. To place it in its proper perspective, to let it help us bring the heritage of the pre-Columbian past into at least somewhat sharper focus, we must learn to look beyond its material connotations, remember that it was called "Mama," and not "Money," see it not in terms of weight, and karats, and insurance values, but view it as perhaps an Aztec might have seen it four and a half centuries ago: beautiful because it was beautifully wrought by the hands of a master craftsman who served his gods in the task, sacred and meaningful because it was the color of the sun and of rich, ripe maize.

The "Gold Before Columbus" exhibition is the first cooperative cultural effort of its kind on the part of the Los Angeles County Museum and the University of California at Los Angeles—and, we are confident, not the last. The Museum is presenting the exhibition in association with its own Science & History Alliance and the Center of Latin American Studies, UCLA, whose field of interest ranges from the ancient cultures of the Americas to the problems of the 20th Century. The director of the exhibition, Mr. Furst, is himself a staff member of the Latin American Center, as well as a member of the Board of Directors of the Alliance. as well as teaching anthropology at San Fernando Valley State College.

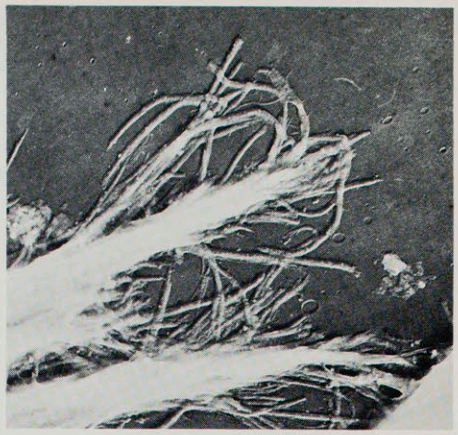


Figure 1

FIGURE 1: *An electron micrograph of a frayed bundle of cartilagenous fibers obtained from a La Brea fossil. Most of these fibers are relatively smooth and without the regular cross-striations so conspicuous in Figure 2. There are, however, some collagen fibers also present as is to be expected with cartilage. Magnification 12,300x.*

FIGURE 2: *An electron micrograph of a bundle of collagen fibers isolated from a fragment of fossil rib bone from Rancho La Brea. The striated appearance of the individual fibers identifies them as collagen; no other protein looks like this. Magnification 23,500x.*

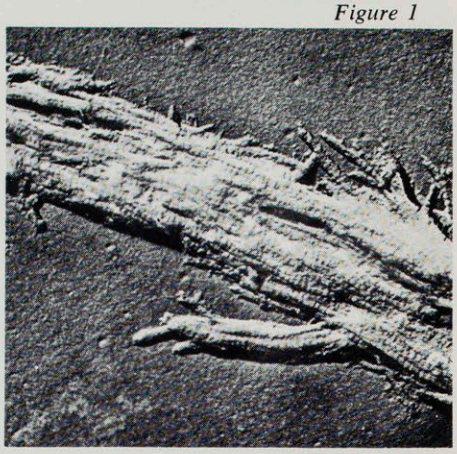


Figure 2

BELOW: *The electron probe used for determining the chemical composition of microscopic regions of a fossil. At the right are eight microradiographs of the sample made with x-rays of different wave lengths; they provide a guide to the areas most important to analyze. At the left are the electronic circuits that measure the amounts of different chemical elements in an area of no more than a hundred millionth of a square inch. The investigator, looking through the microscope, moves the specimen until the region he wishes to study comes under the beam of the electrons.*

PROTEINS from Rancho La Brea Fossils

RALPH W. G. WYCKOFF
University of Arizona

There is a chapter in paleontology which has scarcely begun and which has not yet a predictable ending. It deals with the complex biological substances remaining in fossils. Knowledge about them not only increases our general understanding of earlier life but bears directly on a particularly important question—has a demonstrable chemical evolution accompanied biological evolution? Do substances produced long ago have the same chemical composition as those made by living processes today?

The fossils we find are of two distinct sorts. Some, which resemble fairly accurately part of a plant or animal, consist of extraneous minerals that have gradually replaced the original substance of the living form. Fossilized wood is an example of this. Even under the microscope it looks like wood but most of the carbon-containing compounds of which it was composed when alive have long ago disappeared. In other fossils, notably bones and teeth, the original substance and the details of its structure remain to tell us about the animal that had produced them.

The most obvious of the constituents thus preserved are the especially durable skeletal parts—the calcium phosphate of the vertebrate bones and the calcium carbonate of invertebrate shells. Nevertheless, the organic matter that is the essence of all life is not always lost. It has accumulated as a more or less completely disintegrated residue in the coal and crude oil upon which much of our present-day civilization depends for its fuel.

Now we are beginning to look for organic matter within the fossils where it was initially a necessary part. This involves seeking to extract from fossils some of the biological substances which we find in their present-day counterparts; or, if these substances are no longer present, to extract the simpler organic derivatives into which these complex components of life have decomposed. Among the more stable constitutents of a living organism are its fats and fatty substances, now being obtained from such ancient rocks as the oil shales.

The truly basic ingredients of all life —the proteins and nucleic acids—are infinitely more complex chemically than the fats and far less stable. Scientists have generally thought that such constituents would not persist over geologically significant periods of time even under the best conditions of preservation, and they have not sought these very seriously in the fossils. The amino acids into which all proteins disintegrate have indeed been obtained from fossil bones and shells, some of very great age; but we are only now beginning to find proteins still intact within fossil remains.

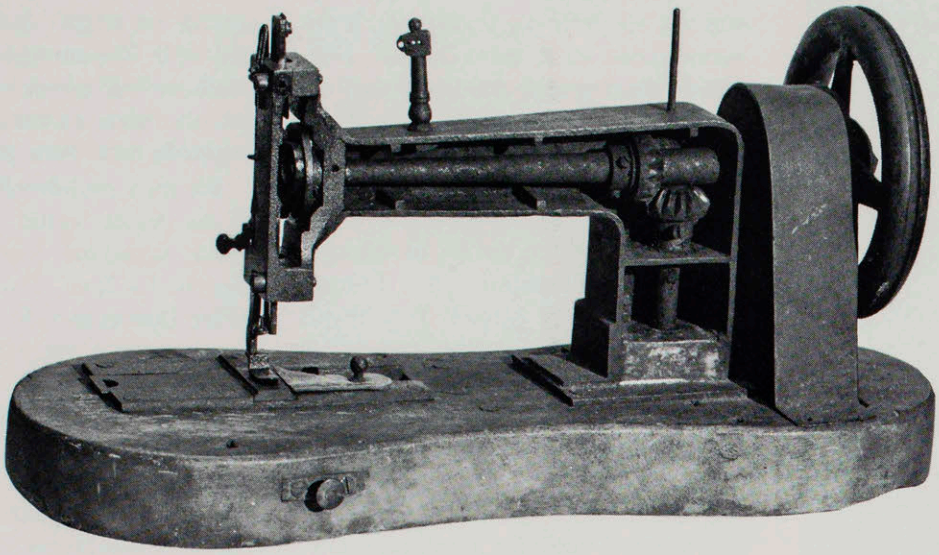
In the laboratory at Tucson, we have been devising new methods of microradiography in order to make photographs which reveal the microscopic and not merely the gross structure of the object under study. Radiographs used diagnostically in medicine and dentistry show the gross structure, but when we applied the new methods of microradiography to some of the dinosaur remains that abound in Arizona, we were surprised at the perfection with which their smallest details had been preserved over millions of years. In view of this preservation, was it futile to seek in them some of the organic compounds they contained in life? As a start we decided to work with the more recent Pleistocene fossils that are abundant nearby. From them we were able to isolate undecomposed protein and to demonstrate with the electron microscope that it was certainly collagen, the same protein we extract from modern bones and teeth. The amount isolated from the fossils we had chosen to study was small, not more than one per cent of what must originally have been present.

We then considered how much more of the protein could be obtained from better preserved fossils, ideally from Rancho La Brea. Through the courtesy of Dr. Downs and Dr. Macdonald of the Los Angeles County Museum, we have begun the analysis of several typical La Brea specimens. As we had hoped, they are yielding collagen (Figure 1) in relatively large amounts. This yield in its turn raised the question of whether or not other substances from the living animal may have persisted in these fossils. In one sample which might be expected to contain much cartilage, the electron microscope has shown (Figure 2) masses of non-striated fibers that are scarcely distinguishable from fibers in nose and joint cartilage of present-day animals. The chemical studies now underway may isolate from this fossil the kind of muco-sugar that characterizes present-day cartilage. We are looking for still other animal constituents in fossils from many localities, but our results to date suggest that those preserved in the La Brea tar will be especially rewarding in our research for this new chapter in paleontology.

Fossils, the remains of the innumerable forms of life which have preceded us on earth, are one of the main sources of our knowledge of evolution. Some are the relics of our own ancestors from which we have developed. There is still much more to be learned about evolutionary development from fossils yet to be discovered and from the application of new scientific methods to those stored in our museums. This is a chapter in paleontology which has scarcely begun and whose results we cannot yet foresee.

Note: Our work has been supported in part by grants from the National Institutes of Health (DE-01183) and the National Science Foundation (GB 9760).

ONE OF A KIND



Made in Moingona, Iowa by A. P. Donaldson, father of the donor. With a large family to sew for, his wife needed a sewing machine; so, with typical pioneer resourcefulness, he produced one with the facilities available in his blacksmith shop, without recourse to any machine shop facilities.

Prized treasures among automobile collectors are the early "one of a kind" horseless carriages created by experimenters. They used bicycle and carriage parts, or whatever they could find which would serve their purpose. The power plant usually came from any available source.

In the Mechanical Sciences Collection of the Museum are several such rarities; however, a blacksmith-made sewing machine of 1869 is an older and rarer "one of a kind." It was made by a Swedish immigrant blacksmith, who was the tool dresser in the small coal mining town of Moingona, Iowa. Moingona was taken from a local Indian dialect meaning "Beautiful River." The inventor, A. P. Donaldson, who also did blacksmithing for the local farmers, had seen a couple of sewing machines at a trade fair in Stockholm before coming to the United States. He, undoubtedly, made mental, if not written, notes on their operation. There were several children in his family and Mrs. Donaldson was kept busy making clothes for them. So, to ease this burden for her, he built the sewing machine in his smithy without the aid of any machine shop equipment.

The frame, which would normally be a casting, was fabricated from flat stock and forgings and forge welded together on the anvil. It is a triumph of blacksmith welding skill that probably could not be duplicated today.

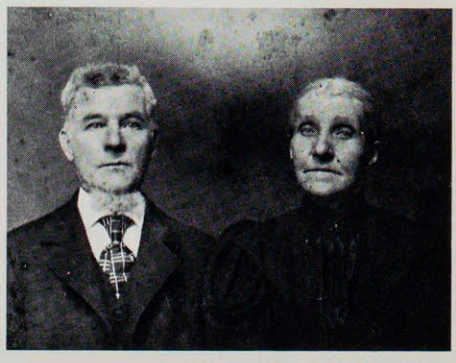
The gears were hand-forged and file-finished, the flywheel being constructed from a piece of bar stock shaped hot on the horn of the anvil, with the ends welded into an almost unnoticeable joint. This rim welded to a hand-forged spider and hub produced a wheel as good as the cast and machined wheels of commercial machines, but at the cost of a great deal more labor. A groove, fullered into this wheel, was probably intended for a drive belt, but to all appearances it was not used because it could not generate enough speed. A small pulley for use with a flat belt under the shield was actually employed. The work of fullering the groove in the wheel and file-finishing it was a triumph of craftsmanship.

It is doubtful if Mr. Donaldson actually made the shuttle, but the skill used to construct the rest of the sewing machine was more than adequate to produce the shuttle as well.

This rugged example of pioneer resourcefulness was abandoned to the weather after many long years of service in the Donaldson family. It was finally rescued by the youngest son of the maker and given to the Los Angeles County Museum. After much patience and penetrating oil, it runs again to preach an eloquent sermon on frontier initiative, devotion, and self-reliance.

RANSOM MATTHEWS
Associate Curator
Mechanical Sciences

Mr. Donaldson, a Swedish immigrant blacksmith, was a tool dresser in a small coal mine at Moingona, Iowa where, in 1869, he built a sewing machine in his blacksmith shop to help his wife keep up with the family sewing.



Mr. and Mrs. A. P. Donaldson

CALIFORNIA HISTORY ON GLASS

Robert A. Weinstein and Ruth T. Mahood

Los Angeles, California. *Main Street looking north from Temple Street about 1884*
Note the St. Charles Hotel and the office of the newspaper LA CRONICA.

They came to us in plain cardboard boxes like groceries from a supermarket. Neatly encased in brown manila envelopes, they stood silently in orderly, sloping rows. Here, before our eyes, were almost a hundred years of recorded history waiting to be brought back to a useful life.

After several years of patient and demanding work, the History Division of the Los Angeles County Museum, with the assistance and understanding of the Director, Dr. Herbert Friedmann, and the support of its Board of Governors, has secured the "Greene Collection of Historic Photographs."

This collection of approximately 25,000 negatives of photographs of southern California is based on the negative files of the well-known Los Angeles commercial photographers, Putnam and Valentine. Starting in the late 1870's, they accumulated, before their retirement, about 9,000 quite remarkable views of fifty years in the development and growth of southern California. These photographs, taken on 8" x 10" glass plates, are all of a remarkably high level of excellence, both technically and historically. Their selection of subject matter seems almost omniscient today, in the light of our current research needs.

In 1942, Mr. Al Greene, a distinguished commercial photographer and photo-muralist of long standing in Los Angeles, purchased from surviving relatives the negatives in this collection. To this nucleus he added many historical negatives and prints he had been collecting for years, making one of the largest collections of its kind in the Los Angeles area.

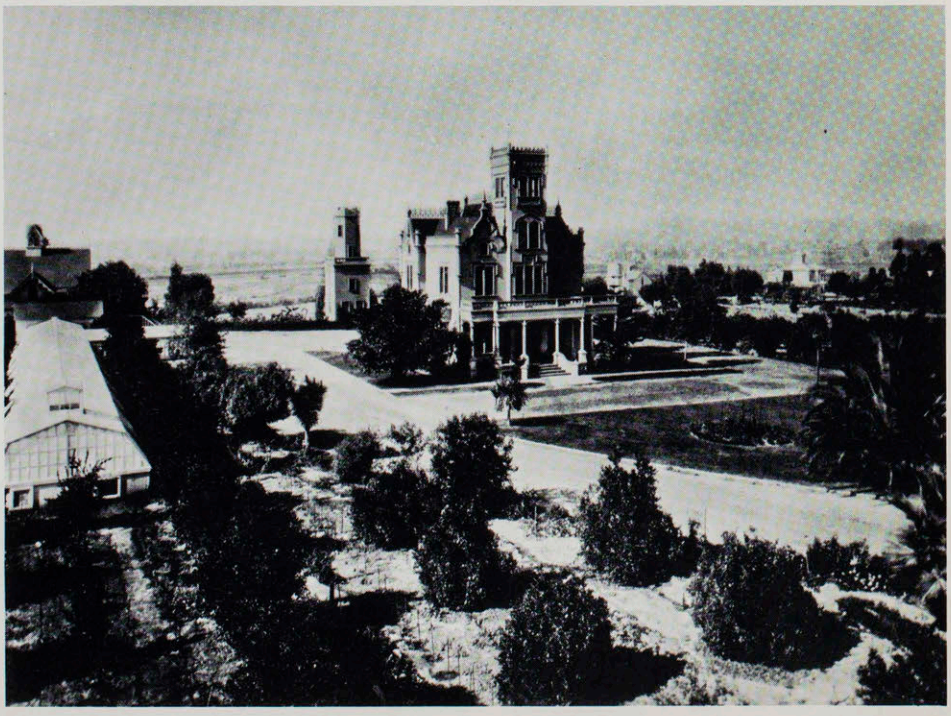
It is this body of material that has come to the Museum through Mr. Greene's understanding help. Fortunately, he preserved the Putnam and Valentine catalogues, as well as a careful identification of his own work. Thus, much of the basic identification and cataloguing has been done, paving the way for the inclusion of this valuable historic treasure into the existing photographic files of the History Division.

It is impossible to describe fully the exciting character of this great archive. A few negatives have been selected, printed and reproduced herewith to suggest the riches stored within it. It is indeed safe to predict that as this is one of the two or three great and extensive collections of photographs on southern California and the development of Los Angeles, it will prove of tremendous assistance to the History Division in its continuing research for the projected permanent galleries in the Museum on southern California history. It will expand enormously the services now provided by the History Division to the public. News of the acquisition of this collection has increased requests for its use from writers, historians, the film and television industries, as well as many others.

Ruth I. Mahood, Chief Curator of History and Robert Weinstein, Research Associate in the Photographic Archives, are speeding up the processing of these negatives to make this fascinating material available to the public as quickly as possible.

---

(1) ∧ (2) ∨



(3) ∧ (4) ∨

(5) ∨

(1) Palm Springs, about 1901. *Dr. Welwood—Murray's Hotel.*

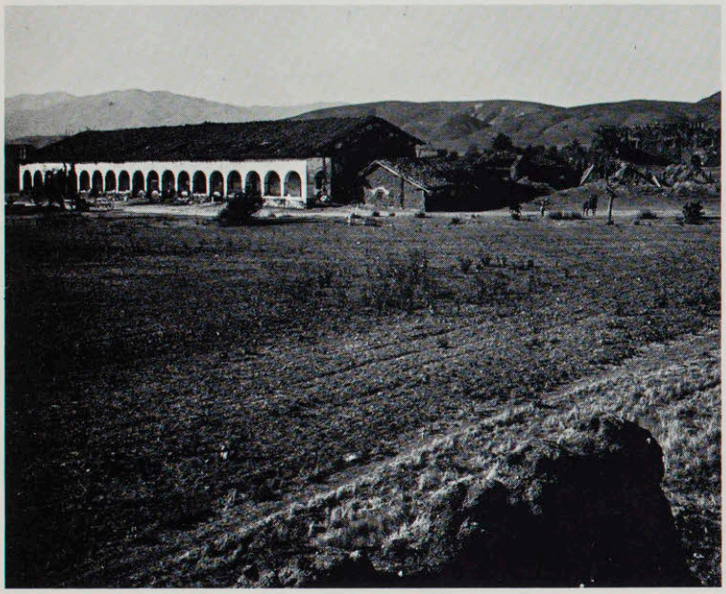
(2) *Residence of Mr. Wm. N. Perry, Brooklyn Ave. in Boyle Heights, Los Angeles—approximately 1887. Note the greenhouse and sculptured landscaping.*

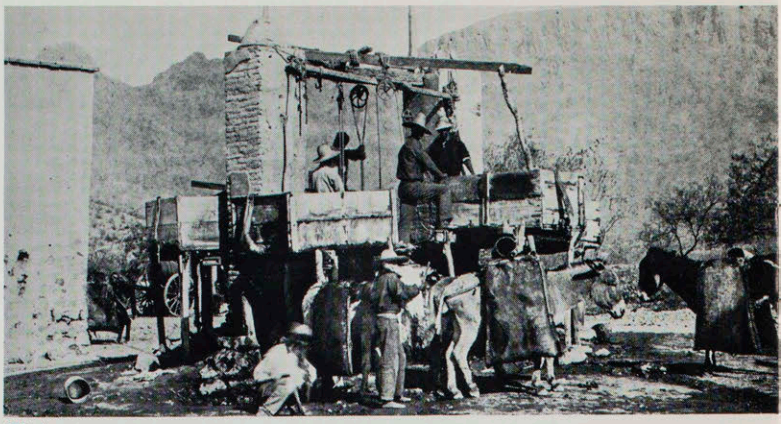
(3) *Cut in progress through the First Street hill from the crest. The house in the photo is believed to be the Sheppard House.*

(4) Santa Fe Railway Depot—Los Angeles. *Note the "vintage" automobiles.*

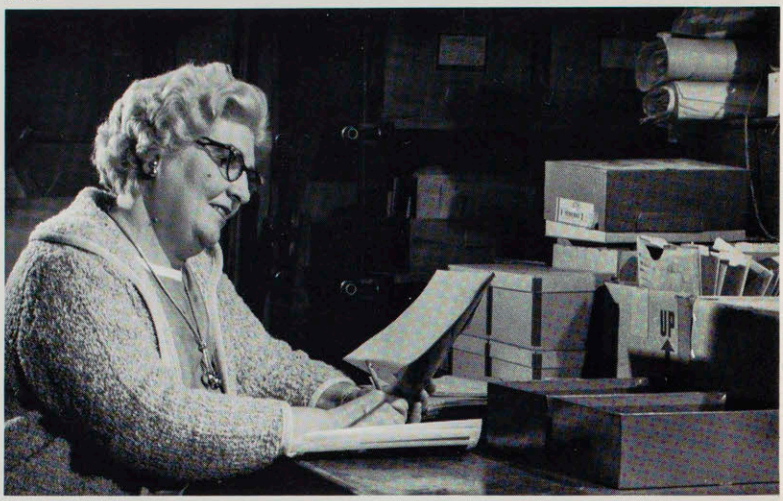
(5) *Capistrano Mission.*

(6) ∧ (8) ∨

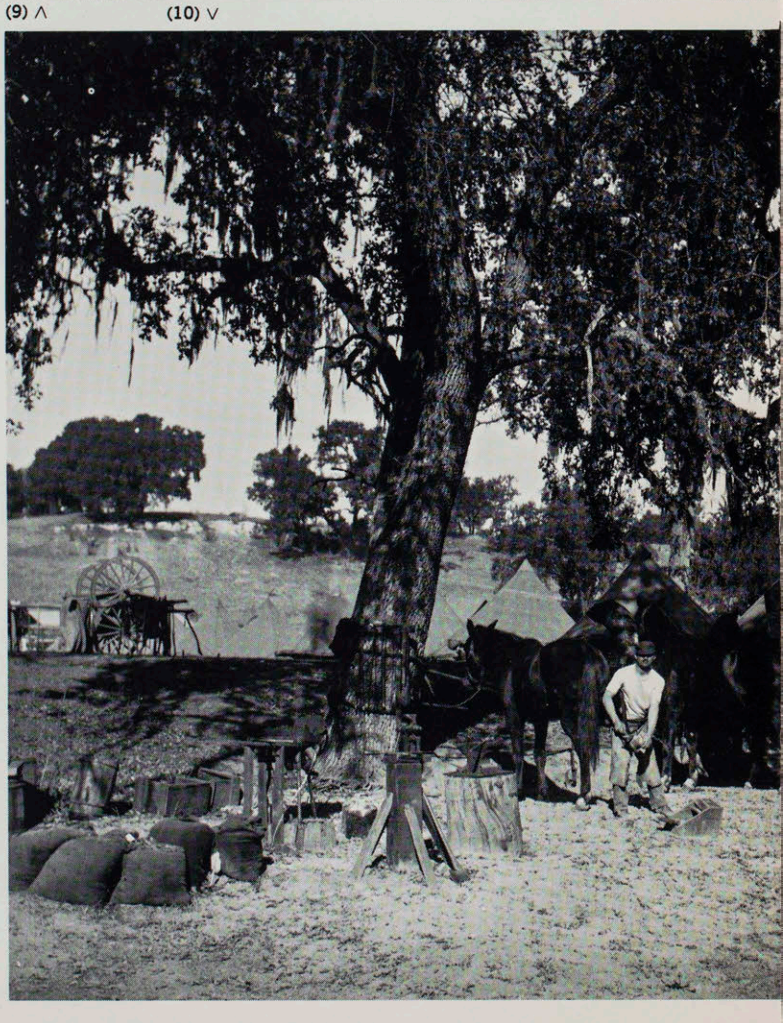




(7) ∧



(9) ∧ (10) ∨



(6) Los Angeles, California. *Junction of Spring and Main Streets. 1888—the Downey Block in the foreground and the Federal Bldg. (now the General Post Office) are visible.*

(7) Mexican Water System? *Transport of water from a common well—perhaps on a ranch of a small southern California community.*

(8) *The Mission of San Fernando.*

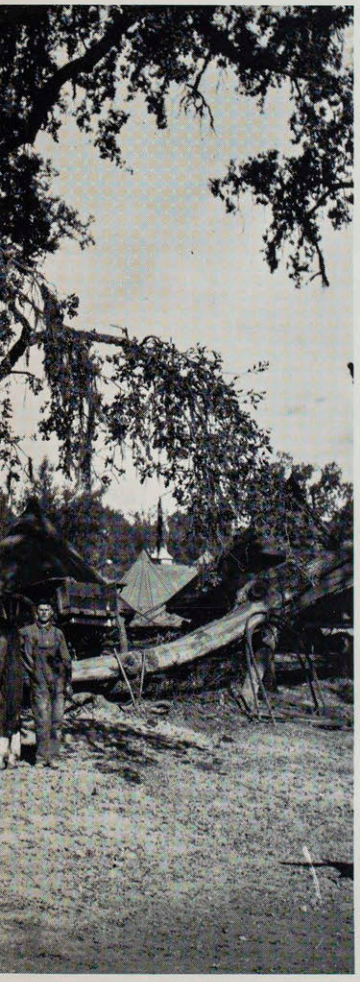
(9) *Ruth I. Mahood, Chief Curator of History, cataloguing the Greene Collection of glass negatives.*

(10) *Outdoor blacksmithing in southern California, circa 1879.*

(11) 4th and Spring Streets, May 1887. *Note the horse-drawn streetcar labeled—Central Railway Co.*

(12) *Main Street, Redondo Beach, California, approximately 1903.*

(11) ^ (12) v (13) v



(14) v

(13) *Ruth I. Mahood, Chief Curator of History, and Robert Weinstein, Research Associate in Historical Photography, are checking and examining the newly arrived Greene Collection of photographic negatives.*

(14) *Mr. Putnam, the photographer and his family in their "photographic car," used in photographing for the railroad. Note the wood-burning stove, the oil lamp and the bicycle in the corner.*

MUTUAL AID AMONG WHALES

DAVID K. CALDWELL,
Curator of Ichthyology,
Los Angeles County Museum

and MELBA CALDWELL,
University of Southern California

Our recent studies* have shown that aiding behavior, evidenced in its fullest extent by one or more animals lifting a distressed animal to the surface, exists in several, if not all, species of whales —including the dolphins and porpoises. It appears also that there is a *tendency* for this aiding behavior to be extended on an individual basis with the sex of the participants and the length of time they have been associated with each other as major factors. Oddly enough, these factors seem to be of more importance than that the participants be of the same species. There have been reports, for example, of intergeneric aiding behavior among small captive toothed whales (porpoises and dolphins). The following interesting case of such intergeneric aiding behavior occurred during the course of our studies at Marineland of the Pacific, and was first reported in the Museum's technical series, "Contributions in Science."

At this time, the main whale tank at Marineland contained three Pacific pilot whales and three striped dolphins. All of these animals belong to the same family, but are members of two different genera. They sometimes occur in close association in the ocean off Los Angeles.

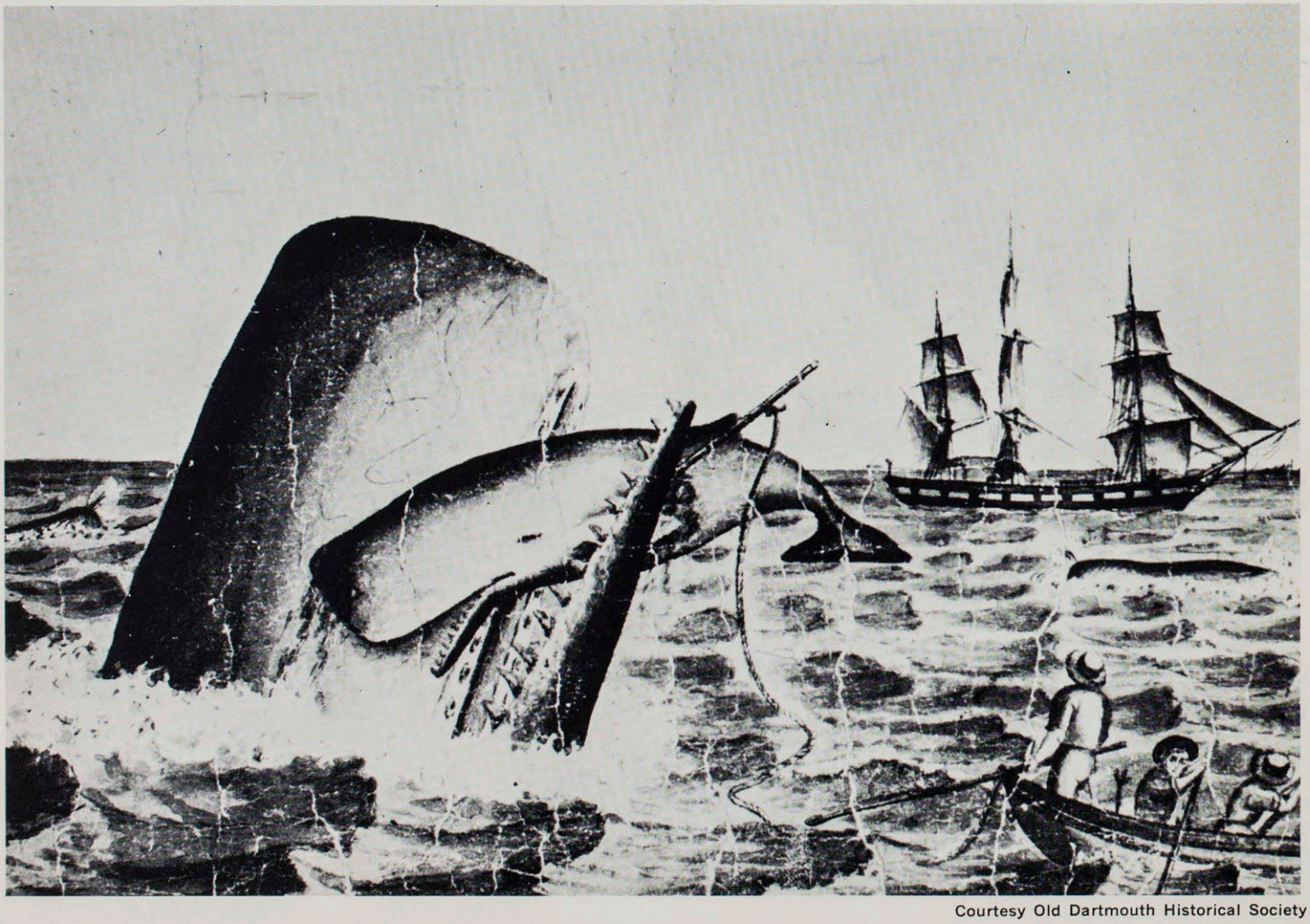
All of the captives were highly trained and several of them had been living together for over three years. The pilot whales in the tank consisted of a large male, Bimbo, a large female, Bubbles and a smaller female, Squirt. One of the striped dolphins was a female named Debbie who had been in the same tank with Bimbo for about three and a half years.

It was about eleven o'clock one morning when we were notified of a strange incident taking place. We arrived at the whale tank and saw Bimbo carrying Debbie in his mouth around the tank. Debbie was later found to have died of natural causes, probably as a result of an old injury. We were told by observers that Bimbo's behavior had first been noted shortly after 9:00 AM and that Debbie had been alive not long before that.

At 10:10 AM Bimbo had been ob-

*These studies will be continued under grants made for the purpose to the Museum Associates from the National Institute of Mental Health and the National Science Foundation.

Females often fought to save their injured young—even at the risk of losing their own life. Here in an old water-color painting of whaling that perhaps is a bit exaggerated, a mother attempts to rescue her infant from the whaler's harpoon.



Courtesy Old Dartmouth Historical Society

served resting near the bottom of the tank at a point near the main water inlet below his usual resting area near the surface. He was holding Debbie in his mouth by one of her tail flukes with the body staying between his pectoral fins. Bimbo's eyes were open to approximately twice normal size giving him a "startled" expression. After an exceptionally long interval of about ten minutes, Bimbo rose to the surface carrying the dead animal with him.

The personnel of Marineland made an attempt to retrieve Debbie at 11:20 AM. A diver entered the tank with a spear gun and, although it could not be seen from our vantage point, other observers stated that Bubbles and Squirt, the two female pilot whales, initially assumed a position between the descending diver and Bimbo.

The diver knelt behind one of the large water inlet pipes. When Bimbo approached him, he succeeded in spearing the dead Debbie and was able to pass the line to other personnel on the top deck. The top deck personnel drew the dolphin to the surface but Bimbo forcibly retrieved the body in his mouth before it could be removed from the tank. In lunging for Debbie, Bimbo struck the heavy stainless steel gate in the upper part of the tank that seals the flumeway into which the personnel were trying to maneuver Debbie. In his excitement, Bimbo damaged the gate and inflicted a large abrasion on his left side, an abrasion which was about two feet long and one foot wide. At the same time, he scraped the leading edge of his dorsal fin. The diver, not having time to leave the tank, was also struck a glancing blow. However, he escaped injury and it was generally believed by onlookers that the blow was not deliberate on the part of Bimbo but just happened in the confusion of the moment.

Snapping the ¼-inch nylon line which bent the harpoon sharply, Bimbo returned to the bottom of the tank with the dolphin. After about ten minutes, he surfaced to breathe carrying Debbie with him. He grasped the still-embedded harpoon in his mouth. An attempt was made to snare the dead animal at the surface and after this attempt, Bimbo dropped the dolphin before coming up. Returning to the bottom, he would take it in his mouth very gently, usually by the pectoral flipper. On two occasions he made unsuccessful attempts to take it by the snout. He also made fruitless attempts to grasp the body. Several times he carried it by the caudal peduncle and once by the dorsal fin.

At 12:00 noon, the management decided to begin the scheduled whale performance. Both Bimbo and Bubbles refused to perform or feed. The smaller whale, Squirt, and the remaining dolphins performed as usual, however.

A little later, when he was approached by a diver, Bimbo avoided him by circling the tank with Debbie in his mouth. He usually remained in the area of the inlet pipe. Once, when Bimbo surfaced for air, the body of Debbie was suctioned toward the outlet pipe in the center of the tank. Bimbo quickly retrieved the body and returned to the inlet pipe.

At 12:40 PM the divers again harpooned the dolphin, this time using a ⅜-inch nylon line. The dead Debbie was drawn to the surface once more. Again Bimbo seized the line before it could be removed from the tank, easily snapping the extremely strong line in the process.

Around 12:50 PM, Bimbo began leaving Debbie for two or three seconds longer than necessary to breathe. He left the body on the bottom and did not attempt to carry it toward the surface. Squirt approached the body but swam away when Bimbo returned. The other striped dolphins in the tank also approached the body but quickly left when Bimbo returned. There was no report that the striped dolphins attempted to aid the dead member of their species but their interest, suppressed by the return of Bimbo, suggests that such aid might have been rendered without his dominating presence.

Both Bimbo and Bubbles again refused to perform for the 1:30 PM show but Squirt and the surviving dolphins performed as usual. By this time, Bimbo's eyes had returned to normal. At 1:45 PM he attempted to lift the body with his pectoral flippers but was not successful.

From a small boat held in position above the dead animal, Marineland personnel lowered a modified swordfish harpoon into the water near the body. Bimbo tried to push the harpoon away with his head. However, after several attempts, the dead dolphin was harpooned while Bimbo surfaced to breathe. Bimbo created a great flurry to recapture the body but this time it was quickly brought to the surface and removed from the tank. The time was 2:00 PM. Bimbo gave several shrill cries that could be heard clearly at the first level of viewing windows below the surface.

At 2:15 PM Bimbo seemed completely normal. He was resting at or near the surface with his eyes half closed as they usually are. Both he and Bubbles again refused to perform at the 3:30 PM show but they both readily took food from the attendant's hand. The following day they performed as usual and, other than the abrasions sustained by Bimbo, no ill effects were noted from the experience.

Two years previously, Bimbo carried a dead female pilot whale around the surface for four hours. The animals had lived together for about fifteen months. On another occasion, a female pilot whale died in Bimbo's tank and he ignored the body. The period of their exposure to each other had been only ten days which may have been too short a time to establish the basis for aiding behavior.

The behavior of Bimbo is especially significant because it was shown by a male, for whom incidents of long term aiding behavior are less frequently reported than for females.

While this particular incident took place after the distressed animal had died, there are many records in which captive animals have actually saved distressed tankmates of their own or other species so that the latter regained their health or recovered from a temporary injury.

Although it is now clear that even intergroup aiding behavior occurs among whales, care should be taken in extending the phenomenon to include whale to human aiding behavior. Despite "sworn" lay reports to the contrary, there is no scientifically accepted case in which a "porpoise," or any whale, has saved a drowning or otherwise distressed human. Even if such an event should occur, there is reason to believe that it would be by accident rather than purposeful behavior on the part of the "porpoise." For obvious reasons, there are absolutely no lay reports on the number of drowning or distresed humans pushed out to sea!

Frances Roberts Nugent

January 28, 1904-December 2, 1963

She was large and smiling, slow-moving and fast thinking . . . when we heard her coming down the hall we knew there would be a change of pace in our day's routine. Frances Roberts Nugent as an art instructor in the Division of Education at the L. A. County Museum of Science History & Art could never limit her interests to art alone. She knew and loved the whole museum, and typically once remarked, "I offer this toast: the galleries, God bless them all!" Rarely did Frances miss a Museum opening whether it was history, science or art. Every regular visitor at the Museum knew her, and to her, "teaching at the Museum is an idyllic opportunity. It is informal, changing, stimulating, difficult, rewarding, impossible, exasperating, and constantly inviting."

Frances Nugent was born in New York, received her training at Pratt Institute, taught later at U.C.L.A. and for a time in the school systems of Santa Monica and Los Angeles. Her golden years of teaching, however, were the 15 she spent here at our Museum . . . her popular afternoon talks, the inservice museum classes for teachers, and her "field trips" to various community groups to introduce them to the Museum's resources. In July of 1962 she left the Museum for a full-time teaching job at San Fernando Valley State College. Just before her sudden death, she was writing a series of great artists' biographies for children, part of which was recently published by Rand, McNally and Company.

Here indeed was a strong personality, never in short supply of words, never unwilling to express an opinion or an idea. And yet, though her mind was fascinated by the whole wonderful universe of sight, sound, ideal, and action, she was no dilettante. She had, on the contrary, an abiding interest in searching out the meanings and relationships of important things. Her seeking mind was too active to be blinded by the narrow specializations of the pedant even though she possessed the scholar's fondness for facts and a breadth which made her respectful rather than prejudiced. Certainly she had her biases—sturdy ones. A person so full of love for the world of living and so full of hatred for defeatism inevitably takes many definite stands, but if she sinned in her biases, then she sinned on the bright side of awe and humor.

Her nearly sixty years undoubtedly brought proportionate happiness and loneliness; the latter she ignored. Hers was an exceedingly busy life married to art. It was her love in the formal sense of painting which she learned young and always kept, although her periods of indulgence in it grew further apart in later years. She painted for fun: she painted for profit. As a teacher, art was also her boon companion. Perhaps more a born teacher than a born painter she could popularize complicated concepts which made her beloved to ordinary people who liked art but didn't know "why," or didn't like it and were ashamed to admit it. One of her greatest achievements as a teacher was her lesson of never being ashamed of ignorance, but only of not trying to do something about it! She emphasized over and over that no question honestly asked is silly; being open-minded and observing were the first steps to understanding, enjoying, and loving art. It might be said that she worked these ideas over and over, and yet what a job she had to convince people of so simple a message, to teach them how to feel at ease in the presence of art. Rarest of all, she did not make it austere with snobbery. After all, learning must always begin by setting a mood. This right mood, this positive approach, was the priceless gift she offered. After offering it, many times her comment would be, "now it's up to you."

Hers was a happy life in other ways that were wonderful because their frames of reference are beyond a price tag. To separate her from people or their Maker would be impossible; always human, she loved applause, but seldom vacuous agreement. As the years flew on, she rushed forward into more and more activities. Acquisitiveness was never one of them, for she cared little for "things," only what they meant as symbols or conveyors of beauty. Nor was she much concerned with the comforts of life, so really little concerned as to be disarming about it. Undoubtedly her dedication to her job made her a modern-day puritan, and this unusual quality of evading materialism was a sign of it. If she had no time for collecting, she certainly filled her hours with giving of herself to family, friends, students, museum visitors—anyone. She took care of her writing, her lecturing, her painting—of everything but herself, and of herself she had little physical regard. But her spirit was indispensable to us all. We shall miss her.

Frances Nugent's life was too short for the many labors she undertook; however hers was never a life of mere existence. Each hour meant full living for her. Most of us will remember best her smile. Some may also recall a small golden sunburst as a medallion which she often wore. Each is a symbol of her substance—her warmth and genuine feeling we shall always remember.

JOHN E. BAUER

MUSEUM SPOTLIGHT

AWARD

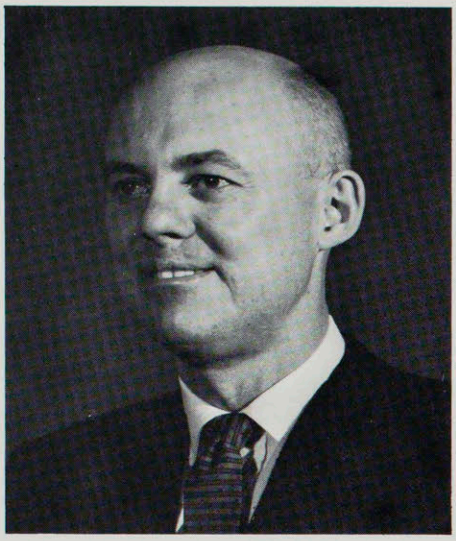
Ruth I. Mahood, Chief Curator of History, was recently presented an Award of Merit by the California Historical Society. The Awards of Merit are presented by the Board of Trustees to individuals and institutions for outstanding contributions to California History. Among the others receiving awards were: Miss Millie Robins, San Francisco Chronicle columnist, Mr. W. H. Hutchinson, critic of contemporary Western American literature and Miss Patrice Manahan, editor of "Westways."

EARLY RANCHO LA BREA COLLECTION GIVEN TO MUSEUM BY L. A. HIGH SCHOOL

The mounted skeletons of the giant ground sloth, *Paramylodon harlani*; the sabre-tooth cat, *Smilodon californicus*; and the dire wolf, *Canis dirus*; along with the skulls of the large panther, *Panthera atrox*; and the ancient bison, *Bison antiquus,* were recently presented to the Museum by Mr. John C. Holt, Principal of the Los Angeles High School. This material was collected by Dr. James Z. Gilbert and his students at the high school in 1907 when the Rancho la Brea pits were opened to excavation for the Southern California Academy of Science, Occidental College, and the Los Angeles High School. The three skeletons were mounted by students at the high school under Dr. Gilbert's direction.

The science classes used this material for instruction and it formed the keystone for the exhibits of the Los Angeles High School "Science and Art Museum." Expanding needs for space necessitated the dismantling of most of the exhibits. Eventually these specimens will be renovated and placed on display with credit given to the Los Angeles High School faculty and students for their gracious contribution.

NEW CURATOR



Dr. Charles Rozaire, Curator of Archeology

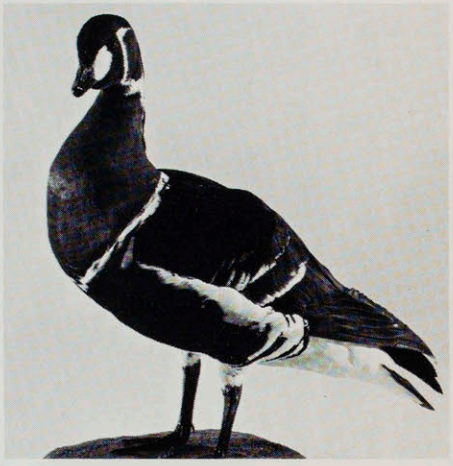
The appointment of Dr. Charles Rozaire as Curator of Archeology at the Los Angeles County Museum has been announced by Dr. Herbert Friedmann, Museum Director.

Dr. Rozaire came to the Museum on December 9, 1963 from the Nevada State Museum where he held a similar post. He specializes in the archeology of the southwestern United States and is an authority on prehistoric man and his culture from this area. Artifacts are one of the most frequent discoveries reported to the Museum by local residents. With Dr. Rozaire's appointment to this newly created post, the Museum is now in a position to perform an additional important public function and at the same time greatly expand its research program in the field. The new curator will immediately embark upon plans for a new permanent exhibition gallery featuring Pre-Columbian archeology.

A native of southern California (born in Los Angeles November 24, 1927), Dr. Rozaire studied at U.C.L.A., where he received his B.A. degree in 1949, his M.A. in 1952 and his Ph.D. in 1957. He has participated in scientific investigations for the Smithsonian Institution, and been active as a teacher and a research scientist at such leading institutions as the Southwest Museum, U.C.L.A. and San Fernando Valley State College. He is a member of leading professional societies and has published more than 20 scientific papers in the field of archeology.

A NEW BIRD FOR NORTH AMERICA

On November 3, 1963, near Rosamond, Kern County, California, Mr. Timothy Doheny shot a strange looking bird which was associated with a flock of white-fronted geese. Examining it and checking with the pictures in his books he found it to be a red-breasted goose, *Branta ruficollis*. This species is native to western Siberia and not previously recorded with certainty in North America.

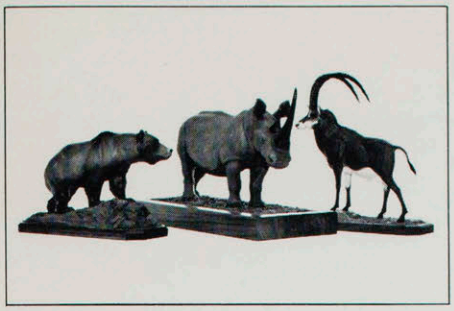


Red-breasted Goose (Branta ruficollis)

Mr. Doheny immediately called Dr. Stager who carefully examined it. No signs of captivity were found. It was obviously a wild bird. This was further indicated when a snow goose shot on the same pond a few days later was found to have a Russian band on its leg. Apparently there had been a flight of geese from Siberia of which this specimen was one. The bird was given to the Museum and mounted by the Museum taxidermist, Paul Hill. It is now on display in the local birds and small mammal hall.

BOOKSHOP NEWS

Among the many items of interest in the Museum Bookshop is a new series of animal sculptures of unusual quality and authenticity. These have been produced by Louis Paul Jonas, a taxidermist and

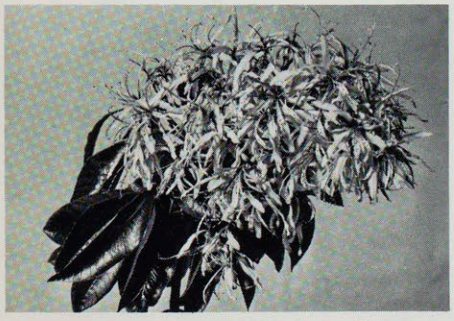


sculptor, whose works exist not only in our own mammal halls, but in those of every large natural history museum in America.

For over forty years Jonas has devoted his talents to animal life. Few living artists know as much of the anatomical construction, physical details and natural habitats of animals. Perhaps his best known work is the heroic-size bronze Grizzly Bear and Cubs (considered by many critics to be the finest example of animal sculpture in this country) in the city park of Denver.

Mr. Jonas has also produced a collection of one tenth scale miniature animal sculptures for use in museum education departments, schools and for private collectors. At present there is a large collection of models including male, female and young of many species representing every continent in the world. From this group we have selected a representative number for sale.

These fine models may be seen in an exhibit case just inside the main entrance of the Museum and the Bookshop staff will be happy to furnish further information as to prices and special orders.

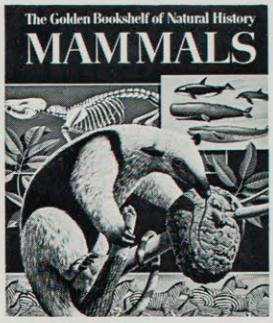


"CAPE CHESTNUT" (Calodendrum capense). Flowers of a tree, east of the Museum, in Exposition Park. In bloom throughout most of June. Illustrated in color in "FLOWERING TREES"

Among the recent additions to our supply of books is an outstanding one, FLOWERING TREES FOR YEAR-ROUND COLOR IN SOUTHERN CALIFORNIA. This thirty-six page booklet contains twenty-five color prints depicting the flowers of twenty-nine species of trees, with sketches of the trees, their descriptions and horticultural notes. In addition, forty-five other flowering trees suitable for this area are listed. Horticultural information is listed with a guide to all year blossoms.

The booklet has been produced by the combined efforts of the California Arboretum Foundation, Los Angeles Beautiful and the Southern California Horticultural Institute. Ralph D. Cornell, our fine southern California photographer produced the excellent color pictures.

This is a truly rare publication made available through the devoted efforts of its sponsoring organizations at the remarkably low price of $1.50. Every home owner and garden-minded person will find this a delightful addition to his library. (Limited numbers on first printing.)



BOOK REVIEW

Book Review: Charles A. McLaughlin, Curator of Mammalogy.
Mammals, by Donald F. Hoffmeister, (The Golden Bookshelf of Natural History, Golden Press, New York, N.Y., 1963, 104 pp., many color illustrations). $3.95.

Everyone is interested in mammals. It may be true that not everyone dotes on the great outdoors, but even the most urbane person shows more than a passing interest in the mammal which stares back at him from the mirror each morning. This hirsute, beady-eyed creature has a great deal in common with the hairy little beast which fixes his gaze upon him from beneath the bushes as he later strolls through the Fern Dell. This common ground, along with a discussion of the animals which share it, forms the subject of the book, *Mammals,* by Dr. Donald F. Hoffmeister.

Dr. Hoffmeister, the Curator of the Museum of Natural History and Professor of Zoology at the University of Illinois, has produced an excellent and attractive book dealing with the subject of mammals. The book should be of interest to everyone who thinks of the world about him. Although it is written for use by school children, it will offer every member of the family a great deal of information and reading pleasure. The book is profusely illustrated in color and boasts a credit list of some fifteen illustrators. The color illustrations include most of the common mammals and greatly enhance the quality of the book.

The book is divided into two major sections. The first section deals with the biology of mammals and answers many questions about their anatomy and physiology, their reproduction, their behavior and their evolution and distribution. Illustrations have been liberally used to show concepts and features discussed in the text in an easily understood form. The second section is titled "Common Mammals of the World" and is organized in encyclopedic form from Aardvark to Zebus. The headings are arranged alphabetically and include all the more frequently used common names for mammals and mammalian groups. There is also an index in the back of the book to facilitate finding information on a particular animal. This type of organization might seem at first glance to be somewhat confusing as closely related forms may be found in different parts of the book (i.e., hares and rabbits, and mice and rats), but the use of cross references within the text and the index eliminate most of the difficulties.

The over-all attractiveness of the book, along with its simple but informative text and excellent illustrations makes *Mammals* a must for the library of any boy or girl who is interested in nature, no matter how old he might be.

Los Angeles County Museum
Exposition Park, Los Angeles 7, California
Return Requested

The Inca consults the golden idols at the sacred huaca at Huanacauri.
Illustration from Felipe Guaman Poma de Ayala, 1613.

NON-PROFIT ORGANIZATION
U.S. POSTAGE
PAID
LOS ANGELES, CALIFORNIA
Permit No. 13945